

## RURAL SCHOOL HYGIENE

### A Section of the Pennsylvania Rural School Survey

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The Problem. The writer of this section of the survey report is new to the state, has been over-burdened with other duties, and has had no time at his disposal to make a thorough-going investigation of rural school hygiene in Pennsylvania. Visits with a medical inspector to a few schools in the state, traveling in many parts of the state where rural schools could be seen from the outside, conferences with county superintendents, with the State Supervisor of Rural School Medical Inspection and Sanitation, and with the State Superintendent of Public Instruction, and with teachers at institutes, a study of the school and health codes, and the generally available data on rural school hygiene have furnished the immediate basis for the following generalizations and recommendations. The inadequateness of the study leads to the first recommendation that a committee be appointed by the Association to continue the investigation and to promote educational publicity with respect to rural school health improvement, including the following phases: Medical Supervision, School Sanitation, Physical Education and Recreation, The Teaching of Hygiene, and the Hygiene of Methods of Teaching and Management. The seriousness of the preventable death and illness losses of the people in the country districts\* (Footnote.- \* There were 54,249 deaths in the rural districts of Pennsylvania in 1912, probably 20,000 of which were reasonably preventable.) as well as the prevalence of physical defectiveness and the lack of recreation make further study and widespread health education of old and young imperative.

### GENERAL ADMINISTRATION

Present Rural School Health Conditions. The records of our State Board of Health show that the problem of health in the country is as serious at least as in the city. In fact, the difficulties of promoting health and normal recreation for the entire population in the rural regions are in several ways more difficult than in our largest cities. The recent studies of Dr. Thos. D. Wood and an examination of the returns of the medical and sanitary inspections of the rural schools of this state indicate that the health status of the rural school pupils is no better than that of city children for whom there have been collected abundant statistics. Where there have not been veritable crusades of corrective measures it will probably be found in any one school year that about one-third of the rural school children are free from serious ailments and defects, that about one-third have dental defects only, and that at least another one-third have dental and other defects of a more or less serious character including infectious diseases. The actual findings of the medical officers with respect to the health conditions of the children and the sanitary conditions of

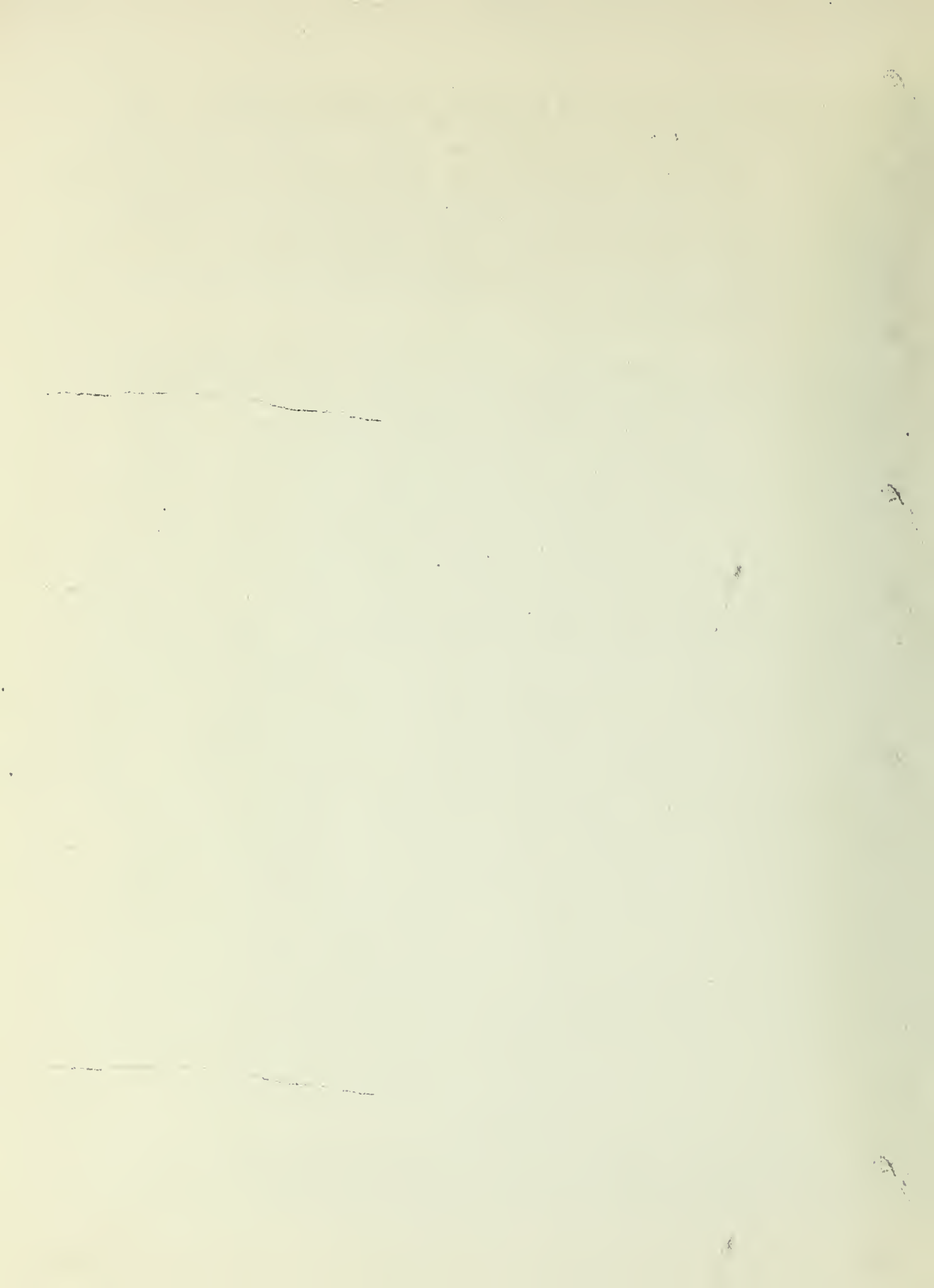


the rural school buildings and grounds are given on pages      and      . Data with respect to the number of school houses in good and bad sanitary condition are given on page      . While the available data are relatively inaccurate and meager, yet we must conclude that, considering the seriousness of the large preventable death, illness, and physical defectiveness rate and the opportunity before the rural school to ameliorate conditions, the health and recreational facilities of the rural schools are on a low plane of efficiency, not as low as many states but low enough to warrant the serious concern of all citizens, and especially the health and educational officials.

Medical and Sanitary Inspection. The State Board of Health furnishes medical and sanitary inspection of such rural schools as are not exempted by a majority vote of rural school directors and a notification to the State Board of Health before the first of July each year.\* (Footnote--\* See School Code, sections 1505-4.) A large majority of the rural schools are now using this service. In this they are ahead of most rural schools of the nation, comparatively few of which have even the primary, once-a-year inspection by physicians. Our physicians are paid six dollars a year for each class-room of children inspected and they make about one visit a year to each of several schools, sometimes returning to a school to inspect children missed at the first visit. A few of the more altruistic give more time. The average amount of time spent in a classroom is probably near two to three hours. The physician sometimes adds to his medical and sanitary inspections through teaching hygiene by means of a short talk to the children and teacher. The opportunity in the field of preventive medicine is great but the salary is very small and the social service standards of the physician are frequently not much above those of the trades-people with whom he is surrounded. After making the inspections, a report is sent to the State Department of Health which later notifies parents of defects found. Complaint is made that these reports have reached parents too long after the inspection but this defect is now being remedied. Teachers are not yet being supplied with a copy of the report of the defects found and consequently cannot well make up a historical record card for each pupil nor follow-up and get cured the ailments found. The Department of Health is now planning to furnish each teacher with such a life card for each pupil, to contain both the health and scholastic record throughout the eight grades of school life, or through the high school. The inspections seem fairly well done considering that the physicians have received no special training for the work and have practically no supervision. That it is superficial goes without saying, but that most of the serious ailments and defects are found is fairly certain. The merits and demerits of the system are about as follows.

Merits

1. It is a start toward better things.
2. It brings to the attention of parents probably ninety per cent of the serious ailments and defects of children.
3. It calls the attention of teachers and pupils each year to the






importance of health and correction of defects.

4. It discloses certain bad conditions of sanitation and frequently gets them improved.
5. It has given us a health and sanitary survey of the rural schools, setting forth more or less accurately the actual conditions.
6. It has aroused a small percentage of parents to a sense of their responsibility for caring for the health of their children through preventive and remedial measures.

#### Demerits

1. It succeeds in collecting many statistics of pathological conditions but fails quite largely in getting cures, corrections and preventive measures.
2. The inspections are entirely too infrequent, thus failing to meet the problem of epidemics of infectious diseases.
3. Inspection is not mandatory, by law, as it is in first, second, and third class districts and in other entire states.
4. The system fails to provide corrective agents and measures, such as nurses with large powers and clinics, and fails to enforce either sanitary or medical recommendations upon school directors and parents, even in so simple a matter as vaccination.
5. Probably the greatest weakness is in the meager scope and quality of educational publicity along health lines. Rural people are isolated and conservative. "They must be shown." Educate the people and they will more generally respond to the recommendations of the physicians. The department could well use fifty or more lecturers to meet the people in a modern way at the rural school social centers. The school department is likewise weak in this respect. Teachers do not do what they can to learn more and to do more along school health lines. The key to school health progress is school health publicity.
6. In this connection, the department is very weak in not having several trained rural school nurses for each county. Nurses have so far proved the most efficient and economical educational agents in cities and they have proved very effective in the rural parts of other state. The department is contemplating a trial of rural school nurses.
7. The system is not a part of the educational department of the state in any direct way. The physicians are looked upon as outsiders and are not given the support they would receive were they employed by the county superintendents or the State Department of Instruction. Medical and sanitary inspection are not made an organic part of education-hygiene and the isolation of the parts is a serious cause of inefficiency.
8. The physicians are employed on part-time. School medical inspection is for them a side-issue, a thing to be done not as a life work and a speciality but as a means of taking in a little extra money when patients are few. There is no opportunity to specialize in this new and technical type of work, except for the one supervisor in the State Board of Health office at Harrisburg, Dr. Royer.



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A Permanent Solution. School health work must be treated as a whole with at least these five divisions:- Medical Supervision, School Sanitation, Physical Education, The Teaching of Hygiene, and the Hygiene of Methods (of Teaching and Management). The isolation of these phases and the lack of officials responsible for the whole health field are now the most important causes of school health inefficiency.

To effect this organization and unity of endeavor, and to promote financial and human economy, the state administration of medical and sanitary supervision must be in the hands of the State Department of Public Instruction; the county administration must be carried on by the county superintendent and, if provided, by the county board of education. Such organization would make possible the employment of a supervisor of hygiene for each county and a corps of school nurses to take the place of the part-time physicians. Four to six school nurses to a county on full time under the supervision of a physician-physical-educator on full time, all under the general administration of the county and state educational departments, would accomplish probably a thousand times more for the improvement of rural life and rural schools than the present arrangement, and more than a similar amount of money spent along present lines would bring about. The State Department of Instruction would thus be enabled to employ an educational hygienist to supervise, inspire, and promote not only health, physical development, and recreational agencies in the country (fourth class districts) but in districts of the first, second, and third class. All districts need such help and stimulus. Medical inspection has been taken out of the hands of boards of health in New York, New Jersey, and Massachusetts, and to a considerable extent in Pennsylvania; three of the above states will soon have educational hygienists in the state educational departments for general supervision of the physical and health side of the education of children so long neglected; and Pennsylvania should proceed along the same line of evolution.

In a county, the supervisor of educational hygiene should take the rank of an assistant county superintendent. His salary should be not less than \$2,000 for full time. Assisting him, there should be in each county a number of district nurses, each nurse taking as many schools, regardless of township lines, as possible, probably not more than fifty classrooms to begin with. Rural school nurses, with their Fords and buggies, are now doing superior work for rural health in a number of states. Four nurses to a county, as a beginning, with salaries at \$40.00 a month would cost, for eight months a year, \$2,240, not counting supplies nor the use of conveyances if provided by the county. The cost would be about equivalent to the salaries of two assistant county superintendents, and should be borne by state and county appropriations. This is, ultimately, the most convenient, efficient, and economical organization. School





nurses under supervision, working as regular school officers, are the most effective means of translating pathological statistics into cures, corrections, and prevention of disease. The work of the supervisor would be to lead and to direct all school health work along the lines of the teaching of old and young the ways and means to health and joyous living. He would use the rural school as a health social center, meeting the parents frequently at such centers; he would organize and promote the play and recreational activities of the schools and communities; he would help get schools and grounds into sanitary condition; he would help bring about consolidation and transportation of pupils where desirable; he would help examine the children medically and physically; he would help get cures, corrections, and preventive measures for ailments and defects found; he would establish and manage "flying" or traveling clinics for treating and prescribing for poor children; he would train the nurses and teachers for their work.

Legislation would, of course, be necessary to provide such organization. The enormous preventable death, illness, and physical defects losses of the rural population, probably not less than forty million dollars each year when estimated in money, make imperative a more energetic and civilized method of ameliorating disgraceful health conditions.

#### IMPROVING THE PRESENT ORGANIZATION OF RURAL SCHOOL HYGIENE

If a thorough-going reorganization of rural school health work is not at present feasible, much can at least be done in improving the present system. The State Board of Health must have much larger appropriations for this work so it can introduce school nurses and other improvements; the provision of medical and sanitary inspection must be made mandatory for all school districts; teachers, principals, and county superintendents must have a much improved training along the lines of educational hygiene before and while in service; and the work of the State Department of Instruction along the lines of school health work must be greatly extended.

The State Department of Public Instruction. The State Department of Public Instruction should have on its staff an educational hygienist who would help the Department to educate the people with respect to healthful living, including the teachers and pupils, to supervise the work to some extent, to enforce health measures, and to put back into schooling what has been omitted since the time of the Greeks. Further suggestions are as follows:-

1. The state department should begin at once to furnish bulletins on the various phases of health work such as play and playgrounds, school sanitation, standardization of rural schools, the teaching of hygiene, the teacher's responsibility for medical inspection and follow-up of school children, etc., such as are furnished to all rural teachers in Oregon, Virginia, North Carolina, and other states. These should be well illustrated, printed in large attractive type, and written in succinct, readable style.
2. It should make the course of study in hygiene for elementary and high schools as helpful both as to content and method as possible.



3. It should place on the list of required reading for teachers such books as Hoag and Terman's recent volume on "Health Work in the Schools" and Curtis' "Play and Recreation in the Open Country."
4. The school code should be bolstered up in sanitary and other health requirements, and the penalties for not complying with the law, such as removal from office by the State Superintendent, and by withholding appropriations should be increased. These powers should be frequently used until new standards are established.
5. Models of rural schools of various sizes, including consolidated schools, should be made in cardboard or other material and loaned to directors, institute lecturers, and county superintendents. Printed plans and photographs of desirable buildings should be sent broadcast to elevate the standards of what the rural school plant should be. Standards and premiums in the shape of door plates or certificates should be set up. Descriptions of the great development of consolidated schools would help in the same direction.
6. School health exhibits should be made up by the state department and sent out to institutes, normal schools, directors' meetings, and other places to raise standards along all lines of school hygiene.
7. It should also furnish health bulletins and news items to teachers, news agencies, directors, superintendents, and others as the U. S. Bureau of Education is now doing.
8. The State Department of Health should be "backed up" by all the powers of the State Department of Public Instruction

County Administration. Even with the general administration of medical and sanitary inspection in the hands of the State Board of Health, a great work remains to be done in each county. Rural school nurses should by some means be provided. They may well be under the supervision of the county superintendents if no county hygienist is provided. The State Board of Health might meet the situation by uniting the offices of county health officer and county school hygiene supervisor, such a man on full time and with a good salary could do for rural health a great public work. The difficulty would be in getting first-class officials and the right kind of co-operation between county superintendents with their many teachers and the school and health officer. This, however, seems to be the logical and economical step in advance with the start we have taken.

County superintendents should report on the health conditions of their counties as city superintendents do and they should use every means to help and co-operate with the health officials.





The State School Law. The following suggestions are offered for improving the school laws with reference to rural school hygiene:-

1. Make medical and sanitary inspection in fourth-class districts mandatory instead of permissive as at present.
2. Provide for more universal enforcement of the vaccination law. It is now largely a dead letter in rural schools in many parts of the state. The State Commissioner of Education of New York is using his power of removing school directors from office for non-compliance with this law. State school appropriations, amounting to about \$75.00 for each teacher and \$1.80 for each pupil in the district between the ages of six and sixteen inclusive, should be withheld for non-compliance with certain definite laws such as those for vaccination, jacketed stoves, proper lighting, suitable outbuildings, provision of drinking water, etc. More effective educational publicity will obviate very frequent recourse to such measures.
3. Section 616, respecting the preparation and free distribution of plans for model school buildings by the State Board of Education, is a very good law but it is not being followed up very effectively. Provisions for educating the public, especially teachers and school directors, as to the desirability of improved standards for the rural school plants (buildings and grounds) should be increased.
4. Section 618, respecting the provision of a lighting area equal to at least one-fifth of the floor area and no light from the front, should be amended to require also a preponderance of lighting area on the left of the pupils as seated at their desks and to provide for automatic withholding of state appropriations from each school in use after January first, 1916 that is not in conformity with the law. A rural school in Columbia County recently added two windows on each side of a rural, one-room, brick school at a cost of only \$30.00. Two windows added to the left of the pupils would have given a lighting area equal to more than one-fifth of the floor area and a preponderance of light from the left. The cost of such changes is evidently insignificant, considering the improvement in the cheer of the class-rooms and the lessening of eye-strain which now increases progressively upward through the grades of school life.
5. ~~Section 621 should be amended to require an average temperature in schools of 68 instead of 70 degrees Fahrenheit~~
6. Section 620 should provide for a hygrometer in each school building as well as a thermometer in each classroom. Recent investigations which indicate that neither insufficiency of oxygen nor increase of carbon dioxide are import-



ent factors in ventilation, lead to an emphasis on humidity, or percentage of moisture in the air, in school ventilation.\* (Footnote:-\* See Hill's pamphlet on "The Relation of the Atmosphere to Our Health" published by The Smithsonian Institution, Washington, D. C. and Termon's chapter on "The Physiology of Ventilation" in his book on "The Hygiene of the School Child.")

All teachers teach that oxygen and carbon dioxide are the principal factors but the important factors really seem to be: perceptible movement of the air, proper temperature (around 68 degrees), suitable percentage of moisture in the air, 40 to 70 per cent, and elimination of disease germs, especially the first three. A direct reading hygrometer such as the small "hair hygrometer" with thermometer attached or the "precision hygrometer" with a face like an alarm clock and the hair well protected should be used. (Footnote:- \* May be purchased from the Central Scientific Supply Co. of Chicago or other dealers for five to seven dollars each. The prices seem variable.) With such an instrument a teacher can tell the percentage of moisture as easily as she can tell the time by a clock. When the moisture in the room goes below forty per cent, of saturation, she can (a) open windows to let in outside air, (b) put water into the receptacle for such purpose as provided with jacketed stoves, or (c) place a pan or pans of water on the stove or radiators. On days when the humidity is well above forty per cent no water need be used. When teachers or pupils have to carry water from farm houses up to a mile away this would be a saving of energy during a large part of the year. The excessively dry air is very harmful and many schoolrooms have air as dry as the desert of Sahara, and dryer, much of the time when the room is being heated artificially.

Windows may be used to provide a distinct movement of the air. Window boards or glass should be used to keep strong drafts off the pupils near the windows. Some teachers fail to keep the fresh air vent into the jacket of the stove open at all times. This should be prevented in most cases, perhaps, by making it impossible to close the vent at all.

7. Section 624 should be amended to provide not only that all doors of schools should open outward but that all such doors should always be unlocked while schools are in session. It is common to see two doors together (double doors) in village schools, with one of the doors locked shut at all times. Such doors should be provided with panic bolts which open the doors by slight pressure by a small child. Many of the 173 children who were burned to death in the Collinwood (Cleveland) fire lost their lives because there was no panic bolt on one of the double doors so it could be opened outward.

8. A section should be provided to insure plenty of fresh drinking water on the school grounds at all times while schools are





in session, and to provide that where water is not obtainable at a distance of a hundred yards from the school grounds that the directors be required to haul fresh water to the school daily or provide a well on the grounds. Where the expense of providing several wells in a district is great it may be found more desirable to establish a consolidated school. (County administration and consolidation of schools are both important factors in school health progress.)

The Health Education of Teachers. The courses in general hygiene in our elementary and high schools should be improved in the direction of more time, better teachers, and better texts. Practical personal, public, community, and occupational hygiene should be taught, not merely for giving health information but for developing workable health ideals and habits. The large number of persons going directly from the high schools to the classrooms as teachers may well have special training along the line of school hygiene in the high schools.

For the graduates of our normal schools to go out as rural school teachers without a thorough-going study of rural life and education and a similarly thorough course in rural school hygiene is little short of criminal, considering the demonstrable needless deaths and illnesses due to ignorance of practical school hygiene on the part of the teachers. The simple essentials of medical supervision, school sanitation, physical education, the teaching of hygiene, and the hygiene of methods of teaching and management can be treated in a course one term in length, meeting five hours a week, and this should be a required minimum. Hoag and Terman's "Health Work in the Schools"\* (Footnote:-\* See list at end of this section.) cover three of these phases. Curtis' book on "Play and Recreation in the Open Country" deals with physical education, including play and recreation. Dressler's book on "School Hygiene" is devoted largely to school sanitation. No one book covers all five divisions except "Educational Hygiene" being published by Scribner's for the writer, which is rather large for a normal school class perhaps. Gillette's "Constructive Rural Sociology" and the various books on rural life and rural education named on page        give many helpful suggestions along the lines of practical educational hygiene in the home and in the school.

The Teacher's Own Health is of supreme importance in education. In their professional training and while in service they should be acquainted with the facts regarding the health of teachers, such as are given in Terman's "The Teacher's Health" and elsewhere. Teachers as a class have more of tuberculosis, nervousness, and alimentary diseases than the average population. Everything possible should be done to make them healthy, vigorous, and joyous, as becomes those whose work is with children and who as public officials of the state must be held responsible as guardians of the public health.

Teachers should be medically examined each year by the physician who makes the medical examinations of the school



children. At present a teacher in any state of ill-health, it seems, can obtain the health certificate that is required each year. For the purpose of learning of incipient ailments each teacher should on her own initiative ask to be examined each year by the examining physician. It is a right and a privilege. The Life Extension Institute of New York is now examining thousands of employees of industrial concerns for employers, without expense to the employees, for the purpose of increasing their industrial efficiency.\* (Footnote:-\* See article by Rameer in Educational Review for December, 1914.) The state has an even greater warrant and obligation with respect to its public officials in the public schools.

Every teacher, moreover, should have an avenue of appeal that will prove effective when she finds herself immured in a school plant that is unsanitary and injurious to her health. An appeal either to the State Department of Public Instruction, the State Department of Health, or to a committee of the State Educational Association should bring prompt and effective relief from such conditions without jeopardy to her tenure of office.

It may be found desirable to provide teachers with social insurance against sickness and injury while at their work.

School Health Handbooks. A selected group of school health handbooks for teachers, superintendents, physicians, and nurses is as follows:-

Allen, "Civics and Health"

Bancroft, "Games for Playground, Home, School, and Gymnasium."

Cabot, "Volunteer Work in the Schools."

Burk, "Health and the School."

Coleman, "The People's Health," for upper grades and high schools.

Cornell, "Health and Medical Inspection of School Children."

Cruickshank, "School Clinics."

Curtis, "Play and Recreation in the Open Country."

Chisholm, "The Medical Inspection of Girls in Secondary Schools."

Denison, "Helping School Children."

Ditman, "Home Hygiene and the Prevention of Disease," for home and school.

Foster, "The Social Emergency," a book on sex education and hygiene

Gulick and Ayres, "Medical Inspection of Schools."

Gulick series of hygiene texts for elementary schools.

Hoag and Terman, "Health Work in the Schools."

Johnson, "Education by Plays and Games."

Rameer, "Educational Hygiene," (in press)

Rameer, "School Health," a handbook for teachers. (in preparation)

Rameer, "School Health Administration."

Rameer, "The Administration of School Medical Inspection."

Ritchie hygiene series for elementary schools.

Perry, "The Wider Use of the School Plant."

Sill, "The Child," good for the home as well as lower grades in school.

Terman, "The Teacher's Health."

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1871

1872

1873

1874

1875

1876



Terman, "The Hygiene of Instruction" (in preparation)  
Terman, "The Hygiene of the School Child."  
Tolman, "Hygiene for the Worker."  
Wood, "School Sanitation." (in preparation)

Besides these books there are many free pamphlets issued by the United States Bureau of Education and by various state boards of health and boards of education, procurable for the asking. Kingsley's book on open air schools, entitled "Open Air Crusaders" may be obtained free of charge, or for the postage, from The Elizabeth McCormick Memorial Fund, Chicago. Any teacher can build up a free library on most phases of educational hygiene for her school or herself with little trouble.

Some miscellaneous recommendations growing out of visits to rural schools and conferences with medical officers and county superintendents follow.

Medical Supervision. Sufficient suggestions have been made in this field perhaps for this time. Hoag, in his bulletin on "Organized Health Work in the Schools" shows how teachers may learn to discover over ninety per cent of the ailments and defects of their children.\* (Footnote:-\* Government Printing Office, Washington, D. C., price ten cents. The substance of this bulletin is also in his "Health Work in the Schools.") Teachers can also do very much by daily health questionnaires and home visiting, almost equalling a good school nurse in getting cures and treatments of ailments found. While physicians and nurses are not at the school, teachers must be held responsible for detecting infectious diseases. Hoag's symptom charts will help in this. By use of the rural school as a social center parents may be taught directly by stereopticon and other lectures. State College is preparing slides for such use to loan to schools. The Russell Sage Foundation of New York will loan slides on playgrounds, medical inspection, and other similar topics. Visiting nurses' associations and rural Y. M. C. A.'s may often be appealed to successfully for the loan of medical or playground workers.

School Sanitation. The demand for unilateral lighting of schools has probably gone too far. Unilateral lighting commonly means unilateral windows, and windows on one side of the classroom, or even at left and rear, mean that the opportunity for perceptible air currents in the room is cut off. The shadows of the pupil's hands on their writing, on the right side of the room, are probably insignificant in injurious effect as compared with insufficient ventilation, especially in one-room rural schools, and especially when the ventilating apparatus is poor or is not in use. By cutting two or three windows more through the left wall of the one-room school and leaving the present windows on the right for illumination and ventilation most rural schools can be given glass space equal to one-fourth of the floor space, a



desirable proportion for a room twenty-three to thirty feet in width. Schools with halls should also have windows on the right of pupils, for light and ventilation. High single sash on pivots are satisfactory.

Cross ventilation may be secured by the use of window boards, about five inches in width, the width of the window sash, and sawed in two and fastened together by a hinge to make removal easy. Such a board can be made in twenty minutes by any handy school boy of the upper grades, and moreover furnishes first-class manual training work. The board should be inserted beneath the sash leaving the air to come in between the sashes at the middle of the window. Wider boards at the bottom cut out too much light. One or more such boards should be used with even the best types of jacketed stoves, I believe. During mild and warm weather the room should be made an open air school, children keeping their wraps on when necessary.

Dark green window shades seem almost universal in rural schools but they should never be used except for the use of lanterns in the day-time. Many teachers have the bad habit of keeping shades drawn half way even on cloudy days, thus cutting off more than half of the light. Shades should be light tan in color and should be translucent, cutting off the blinding rays of the sun but permitting enough light to shine through to keep the room well illuminated. Dark shades frequently make a room cave-like when shades are pulled down to cut out the direct rays of the sun. The injury done by careless teachers who leave shades pulled down when the sun is not shining in is lessened by the use of such light colored, translucent shades. The Luther O. Draper adjustable, translucent, cloth shade as used in the high school building at State College seems to fulfill most conditions of good shades at small cost. Other good shades will be found advertized in the School Board Journal.

Statistics given later and the writer's own observations show that lighting from in front of the pupils is still permitted in a number of schools. These windows should be immediately closed. Appropriations should be withheld and prosecution should follow if necessary.

Lighting in the rear of pupils should not be strong enough to injure the eyes of the teacher. Small high windows have proved satisfactory, or long windows with colored glass or curtains for the lower sash.

Fumigation of schools by means of formaldehyde or other chemicals is probably unnecessary and wasteful. The State Board of Health officials of New York have recommended soap and water cleaning instead. In fact, cleaning and sunlight are gaining rapidly in favor with experts in this field over older methods of disinfection that have been brought in during the past fifty





years. fumigation has been aptly called "burning incense to our superstitions." It may, however, be necessary in some cases merely to allay the fears of parents, but soap and water scrubbing should accompany it.

I have seen rural schools full of flies in my visits. Desks were covered with remains of pupils' lunches and the warmth of the room kept the flies alive till late in the fall. Such teachers may teach the spread of infection by flies when they come to the subject in the hygiene text-book while by their neglect they may be spreading disease. A few five cent swatters, or screen wire nailed on sticks by the boys, or a little sweeping of the ceilings on cold mornings would have eliminated these disgraceful pests. In one case the flies were so numerous that one to three or more could be seen on each piece of pie and other food that children were eating; and yet a county superintendent had visited the school without comment a short time previous to my visit. It would seem that a campaign of school health education for county superintendents might be an economical and desirable approach to the rural school health problem.

An examination of the statistics gathered in the annual rural school sanitation survey as given later will show the need of further measures along lines of sanitation. Great care should be taken in providing sanitary privies. Paint should have sand scattered evenly on it while fresh so markings will be prevented. There is a striking dearth of paint at most rural schools of frame construction.

Physical Education. Play and recreation in the country are much needed by old and young. The rural population in many counties of Pennsylvania is actually decreasing and far too many of our youth find the farm a dull, sordid place of all work and no play and are leaving it for the cities. The rural school should meet or help meet the needs of rural life and it has a fine opportunity at this point. I need but suggest the value of Curtis' book on "Play and Recreation in the Open Country" at this point. Many recreative and educational games and plays should be taught country children; apparatus for play should be on every rural school ground; the rural school should be made an evening recreational center for old and young; and a more joyful spirit should pervade the school life. A teacher who will not get out on the playground at recesses and play with the pupils is only half a teacher. For her own health and noise, and for better attainment of the goal of life she should regard play as an opportunity. Play should be a part of every course of study and teachers should be trained and tested along the lines of play, games, recreations, calisthenics for the classroom, the construction and use of play apparatus.

No teacher should go into the schools from normal schools who does not understand how to lead in folk dancing. By the use of movable school chairs instead of desks screwed to the floor the classroom can be put to most of the uses of a small gymnasium. If the rural school is to be used as an evening social and recreation center there is no reason, except the narrow prejudice and traditions that are driving boys and girls from the farms, to keep folk dancing out of the rural school for the youth

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and adults of the neighborhood. City schools have long had such advantages. One big reason for the consolidated school is the better opportunity it affords for such a social and recreation center with youth in attendance in sufficient numbers to make some social life possible. To eliminate the prejudices, we need wise guidance and publicity. Demonstrations may well be held at every county institute. The use of pictures of children and youth engaged in such plays, games, and dances will do much to make them gain in favor. Let us lead and educate the people rather than attempt merely to drive them by legislation. Legislation is good but education is better. Both are desirable.

Specially helpful free, or free for the postage, bulletins:-  
Curtis, "The Reorganized School Playground" (ten cents), Supt. of Documents, Government Printing Office, Washington, D. C.  
State Board of Education of Oregon, "A Practical Recreation Manual for Schools."

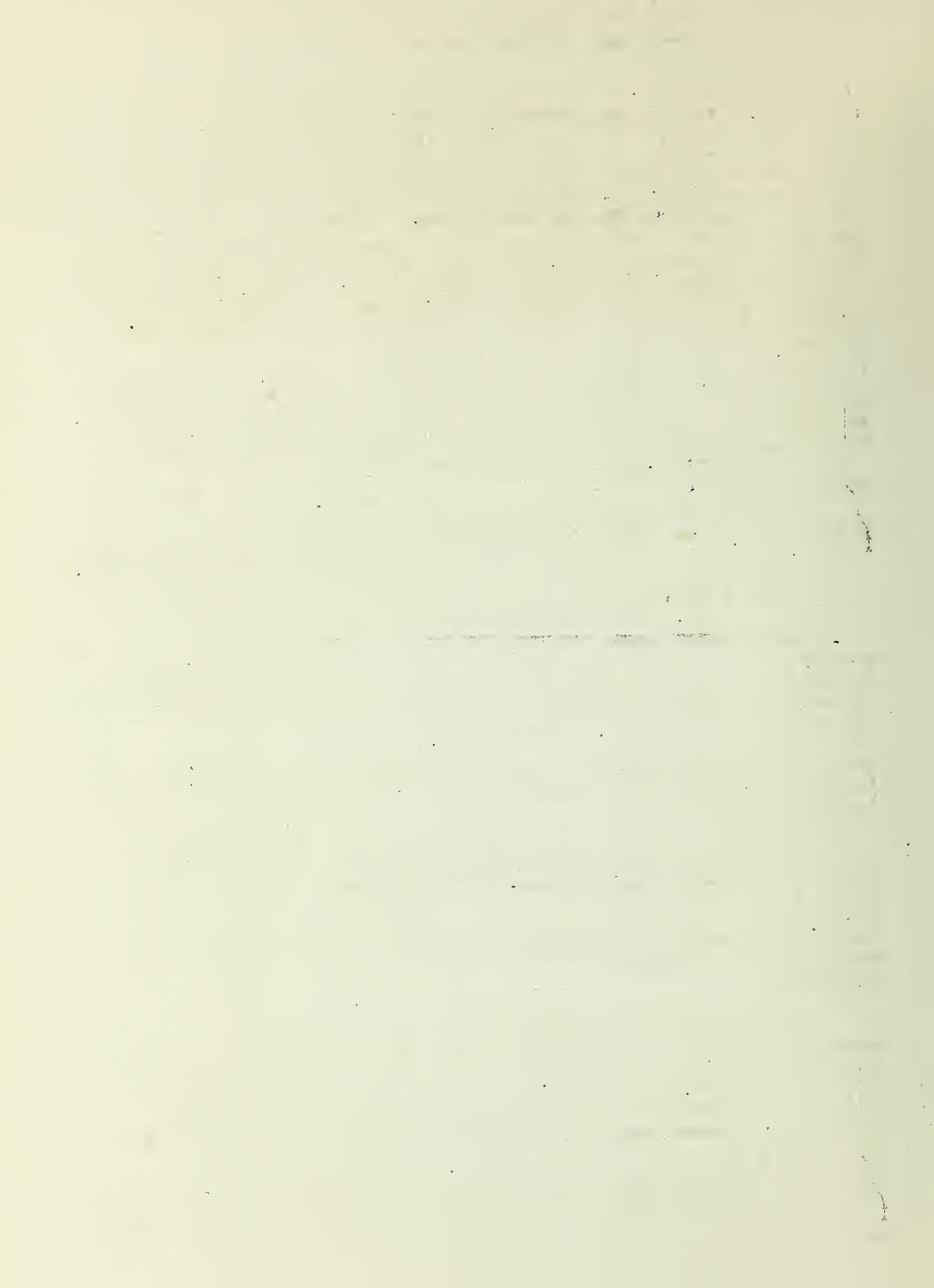
State Department of Public Instruction of Virginia, "Play and Athletics for Virginia Public Schools."

Sample copies of the "Playground," a monthly magazine, may be obtained at the Playground offices, No. 1 Madison Avenue, New York. It should be in every school where the play-life of children is made a feature

Most rural school playgrounds are too small but few are well used as they are. The excellent work done by several county superintendents of Pennsylvania in organizing play festivals and school field meets as well as organized play activities at the schools are worthy of wide emulation.

The Teaching of Hygiene. The text-books used most commonly in the rural schools are not the best. Older texts emphasizing principally the anatomy and physiology of the human body are quite common, but the newer books dealing with how to live healthily and happily in this world are making their way. We need hygiene books especially constructed for rural schools. Since each township selects its own text-books in this state, it has been difficult to learn of the actual texts that are generally used, although questions asked teachers assembled in several county institutes seem to support the above conclusions.

Teachers should learn to teach hygiene in such a way as to create habits and ideals of healthy living. By daily questioning the pupils about the ventilation of their sleeping rooms, about their use of a tooth brush and visits to a dentist, about the drinking of coffee and tea, about bathing and washing, about bathing and washing, about hours of sleep, about their food, and many other matters, a teacher may gradually change the health habits, ideals, and standards of a community. The suggestions given in Hoag and Terman's book previously mentioned are helpful. Every case of sickness of the pupils and every case of physical defects may be utilized in one way or another





without offence in developing right attitudes toward the health problem and right habits for solving it. As suggested before, teachers and county superintendents and supervisors must first be educated along health lines. With the present large number of valuable books there is no excuse for ignorance along these lines. A volume on school health can be read in a few evenings spent as concentratedly as teachers read novels.

The Hygiene of Instruction, of Methods of Teaching and Management. The poor arrangement of programs of study, the irritating methods of management and discipline, the lack of tact and control, may all be means of lowering the tone, and consequently the health, of the classroom. Just as a well lighted, and well tinted room with beautiful, restful, and suggestive decorations may be a great means toward joy and health, so may the teacher's method of teaching and management be a benediction or its opposite. Rooms and teachers observed seem to require this suggestion.

In general, we regret the lack of data and the lack of time for the preparation of this study. The school spirit of the rural teachers has a healthy tone, as is evidenced by the appropriation for the expenses of the survey; good work is being done along all health and development lines; Pennsylvania is near the front in this work; and the opportunity before the teachers and statesmen of the state at the present time is very great. With further investigation and co-operation for bringing recommendations to pass we may well hope to lead the nation in this great work.

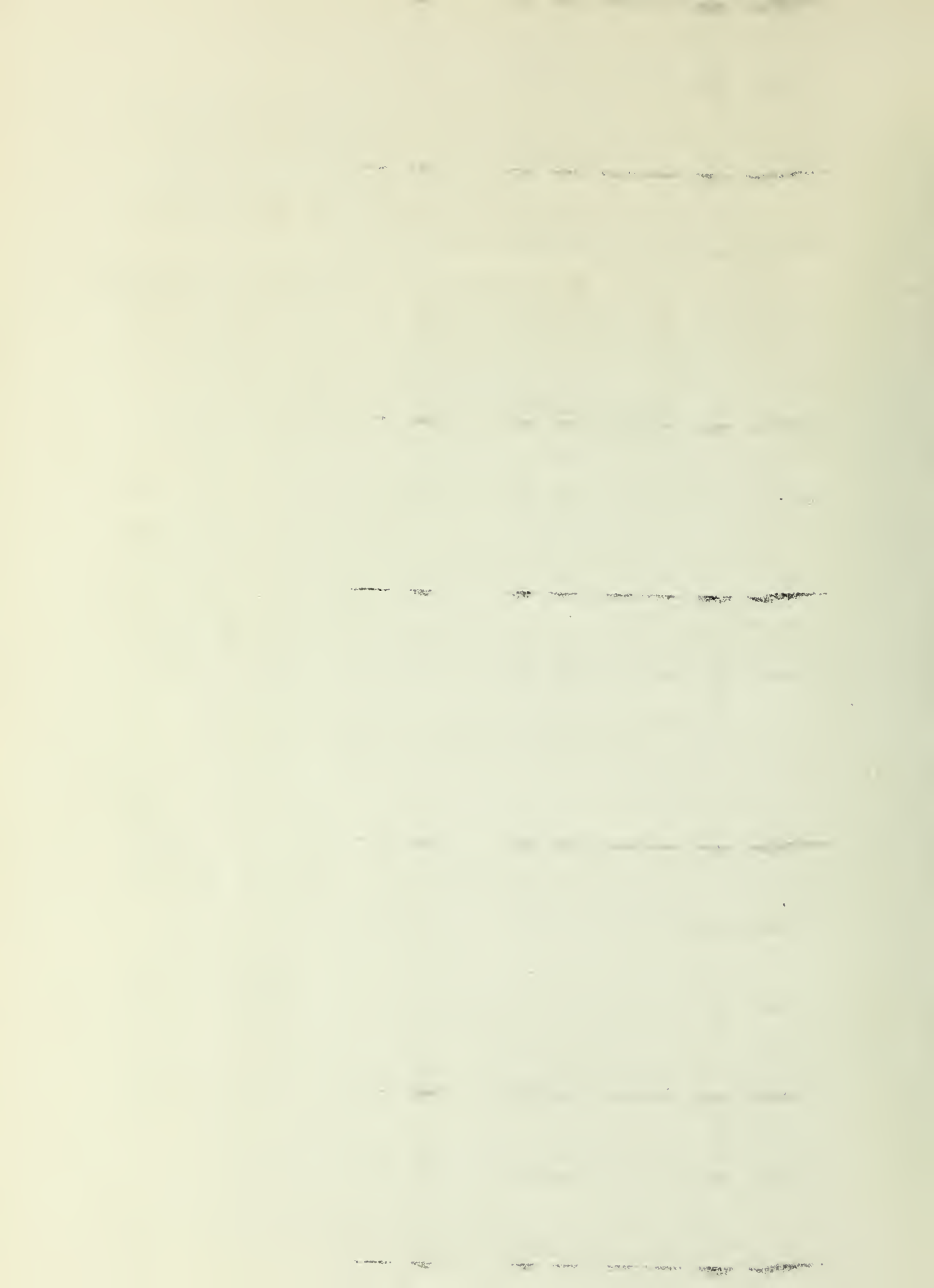
# EXHIBIT A

## SANITARY INSPECTION OF SCHOOLS - SESSION 1912-13 Sanitary Survey

No. of schools inspected	7,375
No. of schools unsanitary	6,731
No. of schools sanitary	645
SCHOOL BUILDING	NUMBER
No. of individual rooms inspected	11,684
No. of rooms having sufficient air space	5,825
No. of rooms deficient in air space* (Footnote:-* cu. ft. not given in 16)	6,659

	YES	NO
Are rooms clean?	11,929	389
Is saw dust or other substance used with a disinfectant before sweeping?	3,476	8,151
Has dry dusting been absolutely abandoned?	4,787	6,853
Does light enter in front of seated pupils?	1,399	10,131
Does light surface equal 20 per cent of floor surface?	6,776	4,795
If pencils or pens are collected are they re-distributed so as to insure each pupil getting his own?	5,663	716
If "Plenum" or other system of artificial ventilation is used, is it in good working order?	3,228	1,368
Are some windows always open?	2,605	369





	Yes	No.
Are some windows always open if the system is not in full operation?	3,695	369
If no artificial system of ventilation is used, are some windows always open from top or bottom?	5,663	716
Are ventilation boards used under lower sash?	1,280	5,943
Are windows open during recess?	6,682	562
Are yellow or linen colored shades used?	2,564	4,594
If room is heated with stove is stove jacketed?	3,051	3,141
Is cold air admitted at the stove?	1,149	5,255
Are efforts made to keep air of room moist?	2,411	4,719
Are dustless crayons used?	4,474	2,304
If modern heating device is used, is it a direct heating system?	1,262	715
If indirect heating system is used, do cold air ducts receive air remote from lavatories and water closets?	1,471	614
Are adjustable seats used?	1,535	5,614
If seats are not adjustable, are foot-stools provided for children whose feet will not touch floor?	618	5,484
Is a well ventilated, clean, dry, cloak room provided?	2,666	4,368
<u>HALLS, ETC.</u>		
Are the halls clean?	2,674	170
Are they well lighted?	2,780	288
Are they well ventilated?	2,773	291
Has the roller towel been abolished?	3,049	1,770
Do the exit doors open outward?	1,554	3,319
Are stairs wide and straight?	1,543	449
Are exits free from obstruction?	4,124	117
Are iron fire escapes provided?	263	2,157
<u>BASEMENT</u>		
Is the basement clean and dry?	1,576	263
Is the plumbing modern?	841	166
Is the basement well ventilated?	1,114	267
<u>WATER SUPPLY</u>		
Does the school have its own local water supply?	1,769	5,363
Is it apparently pure?	5,153	256
Is it protected from surface drainage?	5,400	889
Is it free from cesspool, privy, vault or manure drainage?	6,005	285
Is water stored in a covered container?	2,397	4,195
Does container have spigot at bottom?	2,115	3,726
Is the container scalded daily?	549	5,421
Is a fresh supply secured each session?	5,149	912
Is a public water supply used?	1,255	5,539
Are sanitary drinking fountains provided?	617	6,023
Have common drinking cups been abolished?	2,606	4,578
Are individual drinking cups provided?	2,111	4,951
<u>GROUNDS</u>		
Are playgrounds adequate in size for number of pupils?	6,395	718



	YES	NO
Are they well drained?	6,639	540
Is there evidence of ground pollution? (is urine or feces deposited on the surface of the ground.)	282	6,778
Is garbage properly destroyed?	6,711	519
Are there accumulations of manure or other refuse in vicinity of school grounds?	175	6,909
<u>SEWAGE DISPOSAL</u>		
Are separate privies provided for each sex?	7,056	112
Are they in good repair?	5,214	1,699
Are the approaches tightly screened?	3,398	3,699
Are they clean?	5,230	1,797
Are deep vaults provided?	3,071	3,796
Are vaults water tight?	1,771	4,606
Is surface drainage excluded from privy contents?	5,054	3,742
Is lime or other disinfectant used?	2,675	4,251
Are vaults or cesspools filled within one foot of the top?	1,169	4,970
If modern flush closets are provided, do they discharge into a public sewerage system?	273	295
Are they clean?	460	62
Do they discharge into cesspools?	120	405
Do they discharge into streams?	164	393
Are soil pipes carried through roof?	321	245

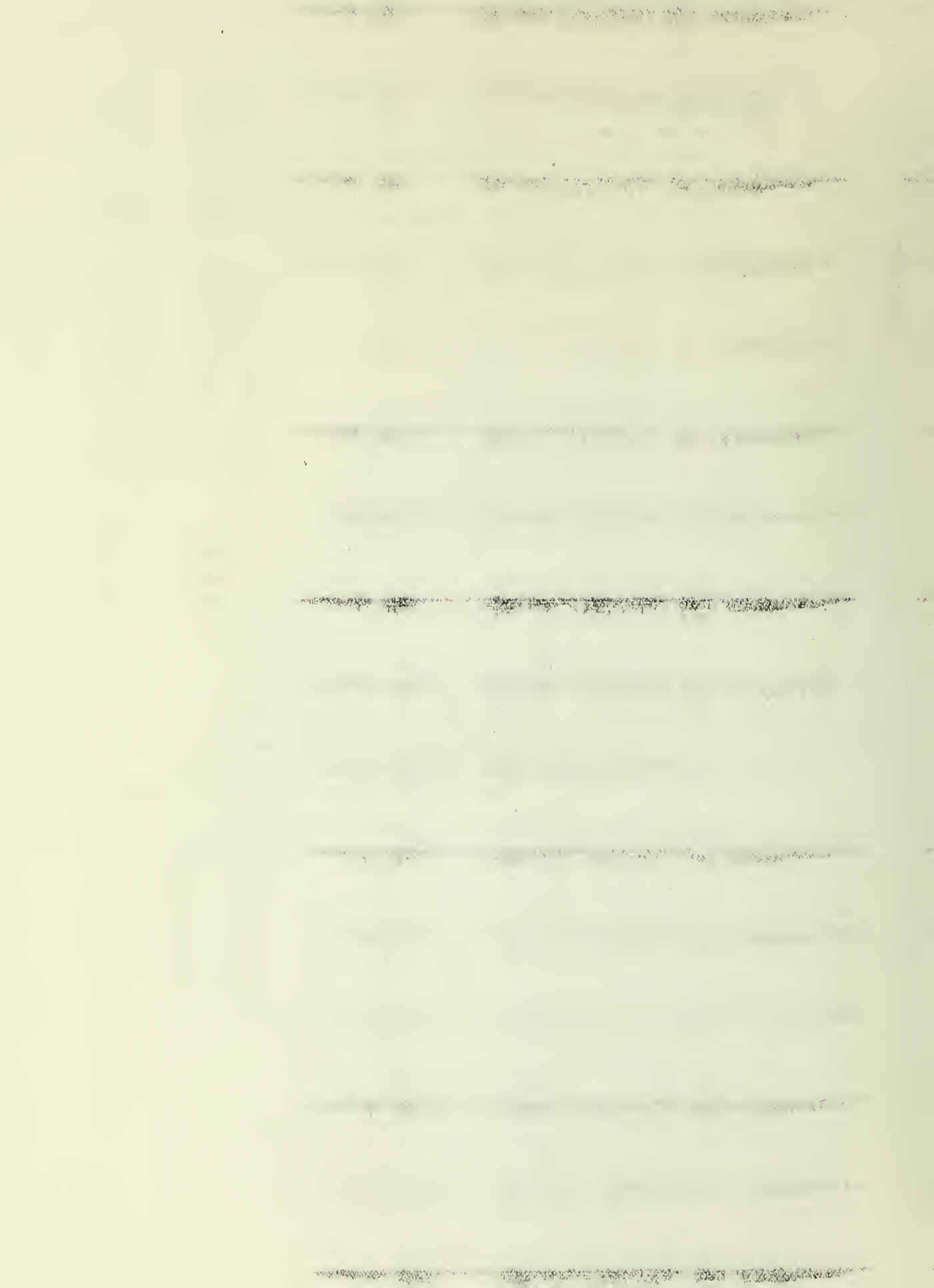
# EXHIBIT B

## DEATHS OF CHILDREN OF SCHOOL AGE IN PENNSYLVANIA, 1912

Selected from National Mortality Statistics

Principal causes of death in order of frequency for sum of all ages

	Lower Elementary School Age 5--9	High & Grammar School Age 10--19	Total School Ages 5--19
Totals for all ages	1,202	1,614	2,816
1. Accidents (total)	368	749	1,117
2. Tuberculosis (total)	189	895	1,084
3. Diphtheria	497	116	613
4. Pneumonia (total)	148	243	391
5. Heart Disease, Organic	101	288	389
6. Typhoid fever	77	254	333
7. Appendicitis	57	189	246
8. Scarlet fever	152	42	194
9. Broncho-pneumonia	109	48	157
10. Rheumatism, articular	55	93	148
11. Meningitis (total)	61	63	124
12. Pringle's disease	35	80	115
13. Puerperal state	0	104	104
14. Endocarditis, acute	34	63	97
15. Nephritis, acute	42	53	95
16. Measles	68	24	92
17. Diarrhea & Enteritis	66	21	87
18. Diabetes	15	49	64





19. Hernia, intestinal Obs.	18	54	52
20. Tetanus	29	23	51
21. Epilepsy	9	42	51
22. Peritonitis, simple	18	32	50
23. Suicide	0	48	48
24. Bones, diseases of	17	50	47
25. Stomach diseases, others	29	15	44
26. Spinal cord, other dis.	22	22	44
27. Cancer (total)	22	19	41
28. Pharynx, diseases of	20	15	35
29. Influenza	17	20	30
30. Eyes, diseases of	10	14	24
(Small pox)	10	1	11

Note:- This table shows the causes of death of children of school age according to the diagnoses sent in to the State Department of Health and by it forwarded to Washington. It shows the thirty diseases which are most destructive to child life at these ages. The means of prevention along the lines of education, developing bodily resistance through exercise, careful and frequent inspection and follow-up work, looking out for carriers of infectious diseases such as typhoid and diphtheria, and thorough-going school, home and community sanitation, are all problems for rural schools that would help the rural population to solve its principal life problems.

#### EXHIBIT C

Thirty-seven Causes of Death for the Entire Population in the Rural Districts of Pennsylvania and Arranged in order of frequency. The total number of deaths in the Rural Districts, 1912, were 54,239 According to Fisher's tables, 23,000 of these deaths of country people were reasonably preventable. Cities are defined as municipalities of 10,000 or more population, rural districts those with less.

1. Heart disease, organs	4,880	19. Paralysis	565
2. Ext. causes, accidents	4,653	20. Convulsions	562
3. Diarrhea & Enteritis	4,272	21. Influenza	506
4. Tuberculosis	4,249	22. Whooping cough	491
5. Early infancy other di.	4,011	23. Diabetes	471
6. Apoplexy, cerebral hem.	3,566	24. Measles	454
7. Pneumonia	3,479	25. Liver, cirrhosis of	433
8. Nephritis, acute	2,593	26. Hernia, intestinal ob.	398
9. Cancer	2,504	27. Meningitis	367
10. Bronchopneumonia	1,942	28. Angina pectoris	328
11. Stomach, other dis.	1,024	29. Rheumatism of heart	259
12. Diphtheria & croup	973	30. Paralysis of insane	256
13. Old age	881	31. Spinal cord diseases, oth.	240
14. Ill defined diseases	818	32. Pulmonary congestion	235
15. Bronchitis	789	33. Puerperal septicemia	228
16. Malformation	776	34. Scarlet Fever	220
17. Typhoid	681	35. Appendicitis	207
18. Arteries, diseases of	680	36. Liver, other dis. of	201
37. Epilepsy	200		

1870-1871

1872-1873

1874-1875

1876-1877

1878-1879

1880-1881

1882-1883

1884-1885

1886-1887

1888-1889

1890-1891

1892-1893

# General School Medical Inspection of All Class Districts

From Report of State Board  
of Health

No. schools inspected . . . . .	7,375	
No. school rooms inspected. . . . .	11,684	
No. pupils inspected . . . . .	305,372	
No. pupils defective . . . . .	228,693	74.89%
No. pupils not defective. . . . .	76,679	25.11%
<u>EYES</u>		
Pupils having defective vision. . . . .	82,454	27.00%
No. having conjunctivitis simplex. . . . .	1,031	
No. having iritis . . . . .	27	
No. having trachoma . . . . .	18	
<u>HEARING</u>		
No. pupils having defective hearing . . . . .	8,818	2.90%
<u>BREATHING</u>		
No. pupils having defective breathing . . . . .	10,579	3.40%
No. having serious impairment. . . . .	2,117	
No. having adenoids, (suspected)	4,454	
<u>TEETH</u>		
No. having defective teeth . . . . .	119,246	39.05%
No. having unclean teeth . . . . .	27,685	9.06%
No. having decayed teeth . . . . .	91,561	29.98%
No. having gums diseased . . . . .	928	
<u>TONSILS AND GLANDS</u>		
No. having enlarged tonsils. . . . .	87,202	28.50%
No. having greatly enlarged tonsils. . . . .	26,356	8.60%
No. having acutely inflamed tonsils; ; ;	1,126	
No. having enlarged cervical glands. . . . .	19,659	6.40%
<u>TUBERCULOSIS</u>		
No. reported as having tuberculosis. . . . .	635	
No. reported-tuberculosis of Lungs . . . . .	192	
No. reported-tuberculosis of Glands . . . . .	367	
No. rent.- tuberculosis of Bones & Joints	76	
<u>NERVOUS DISEASES</u>		
Chorea	291	
Epilepsy	82	
<u>SKIN DISEASE</u>		
No. having skin affections . . . . .	4,081	
Scabies. . . . .	88	
Impetigo contagiosa. . . . .	260	
Favus . . . . .	1	
Ring Worm. . . . .	58	
Nits in hair . . . . .	3,657	
Head lice . . . . .	11	
Body lice . . . . .	6	

General Hospital Medical Inspection  
District  
From Report of State Board  
of Health

7,375  
11,684

No. schools inspected . . . . .  
No. school rooms inspected . . . . .

General Hospital Medical Inspection  
District  
From Report of State Board  
of Health

7,375  
11,684

No. schools inspected . . . . .  
No. school rooms inspected . . . . .



## DEFORMITIES

No. pupils having deformities . . . . .	1,529
Hunch back . . . . .	49
Club foot . . . . .	50
Curved spine . . . . .	50
Ankylosed joint . . . . .	13
Hair lip . . . . .	29
Cleft palate . . . . .	95
Goitre . . . . .	347
Miscellaneous . . . . .	896

## NUTRITION

No. pupils noted subnormal in nutrition	13,618
No. pupils noted fair in nutrition	11,463
No. pupils noted poor in nutrition	2,155

## QUARANTINABLE DISEASE

No. pupils in school that should have been in quarantine ..	57
Chickenpox . . . . .	24
Whooping-cough . . . . .	24
Measles . . . . .	7
Diphtheria . . . . .	1

## Teacher's Follow-up Work--Session 1912-1913

Total No. of letters sent parents through teachers	210,001
Total No. of teachers sending in replies at end of term	7,375
Total No. of pupils covered by teachers' replies	132,462
Total No. of pupils reported treated	30,099
Total No. of pupils reported improved	29,245
Total No. of defects reported improved	38,574
Total No. of pupils not treated	87,220
Total No. of records containing no report	15,143

## Reports Concerning Defects

Eyes	Improved	Not Improved
Eyes . . . . .	7,023	2,405
Hearing . . . . .	1,052	480
Breathing . . . . .	1,470	784
Teeth . . . . .	21,638	1,778
Tonsils . . . . .	5,038	3,173
Enlarged cervical glands . . . . .	479	248

## Tuberculosis

Lungs . . . . .	12	3
Bones . . . . .	1	1
Glands . . . . .	3	0
Joints . . . . .	7	0

## IN CONCLUSION

We were unable to obtain from the State Board of Health the reports of medical and sanitary inspection of rural schools for the year 1913-14 and so cannot record the extensions and improvements in this time. The data given above from the U.S. Mortality Statistics and from our state reports indicate, however, a great field of opportunity to help the people of the country to meet through their public schools this great and largely conquerable monster of premature death, infectious and other illness, and lowered vital efficiency.

December 5, 1914.



1,523

40  
50  
50  
50

DEPORTED  
No. of people leaving deportations  
Hence, each  
Club foot  
Curved spine

1,523

40  
50  
50  
50

DEPORTED  
No. of people leaving deportations  
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Club foot  
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